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North Korea's Air Force: Impact of Soviet Deliveries

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An Intelligence Assessment

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An Intelligence Assessment

This paper was prepared by Office of East Asian Analysis, with contributions from Office of Imagery Analysis.

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Comments and queries are welcome and may be directed to the Chief, Northeast Asia Division, OEA,

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Key Judgments

Information available as of 25 November 1985 was used in this report.

North Korea is achieving substantial gains in its air and air defense capabilities, principally through the acquisition of the Flogger G variant of the MIG-23 and SA-3 surface-to-air missiles from the USSR. The provision of these weapons marks a major change in Soviet policy and a closer relationship between Moscow and P'yongyang.

If deliveries are maintained at current levels, the North Koreans will have a full regiment of about 40 Flogger G's by early 1986. The Flogger G is the first fighter of relatively modern design to be introduced into the North in over 20 years, and it will significantly improve North Korea's dated air fleet:

Although P'yongyang will remain dependent on outside suppliers for modern aircraft, it is establishing an indigenous production capability for jet fighters. Exterior construction at North Korea's fixed-wing airframe and jet engine plants appears complete, and we expect manufacture or assembly of a fighter—most likely the Chinese F-7, an improved version of the early-model Soviet MIG-21—to begin early in 1986.

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At the same time, the North is moving to improve its antiaircraft defenses through the acquisition of SA-3 surface-to-air missiles. The SA-3 is a 1960s-generation missile system, but it should greatly improve the North's air defenses at low-to-medium altitudes, where P'yongyang now depends on antiaircraft guns. North Korea's widely deployed SA-2 system is most effective against aircraft flying at medium-to-high altitudes.

P'yongyang also appears to be developing an air-to-surface missile for use in an antishipping role. North Korea probably is attempting to mimic Chinese efforts to convert the Styx surface-to-surface missile to an air-to-surface weapon.

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Comparing the size and composition of the fighter forces in the Koreas through 1989 is difficult. Although we have data on South Korean plans, we are not sure how many MIG-23s the Soviets will supply. Nor are we able to estimate future production rates for an industry that has not yet produced a fighter:

- If the Soviets provide only a single regiment of Floggers and domestic production moves slowly for the first few years, Seoul's favorable position probably would remain about the same through 1989. The superior quality of the F-16 that South Korea will begin receiving early next year should offset gains by the North.

- If Moscow supplies two regiments (about 80 aircraft) of MIG-23s and North Korean production gets off to a fast start, the South's lead could shrink markedly. Seoul would retain only a narrow edge.

South Korea's most important advantage in military capabilities, therefore, probably will remain about the same—but could decrease considerably, rather than increase as Seoul planned under its current aircraft improvement program. As a result, South Korea is not likely to achieve superiority in airpower sufficient to compensate for the North's advantage of a larger ground force with a substantial edge in mobility and firepower. Moreover, if Soviet aid is expanded to include modern ground force equipment, P'yongyang's overall advantages in the military balance between the two Koreas could increase considerably.

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North Korea's Air Force: Impact of Soviet Deliveries

Background

North Korea's numerical lead in fighter aircraft has been shrinking steadily since the mid-1970s as P'yongyang's imports have not kept pace with South Korean procurement. In 1975 the North's lead in numbers of fighters was 2.6 to 1; by 1980, that edge dropped markedly to 1.7 to 1. The North currently holds a 1.6-to-1 advantage in numbers of fighters over the South.[1]

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Seoul was not only acquiring more aircraft than the North, but also procuring higher quality fighters as well. P'yongyang's only source of fighters from 1975 until 1984 was Beijing, and Chinese fighters were no match for the aircraft of US design the South was importing and coproducing. Moreover, Seoul's aircraft were equipped with better weapons, and superior training and tactics added to the South's qualitative advantage—an advantage that gave Seoul a substantial edge in airpower.

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While Seoul was achieving its advantage in the air, the North was expanding its lead in other parts of the military equation. North Korea's ground forces achieved a significant edge in numbers of men and maneuver units, and in mobility and firepower over those of the South. In addition, P'yongyang's numerical lead in naval combatants grew to nearly 4 to 1. It was clear that North Korea had a substantial military advantage over the South, and that Seoul's only edge in military capabilities was in its numerically inferior, but qualitatively superior, air force.

For its part, P'yongyang appeared to be relying on the establishment of a domestic aircraft industry in its attempt to compensate for Seoul's growing capabilities in the air. The last delivery of Chinese fighters took place in 1982. In 1985, however, we began to see an improving relationship between P'yongyang and Moscow, which is having an impact on the military balance. After a 10-year hiatus, the Soviets resumed deliveries of major weapons systems to North Korea, including MIG-23 fighters and SA-3 surface-to-air missiles. The terms for the new arms agreement are unknown, but, in the past year, Moscow has gained increasing prestige in P'yongyang—at the expense of Beijing.

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Air Force Acquisitions

Fighter Imports. by the end of August 1985, 26 Soviet MIG-23 fighters were at Pukchang Airfield in North Korea.

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Most of the MIG-23s appear to be the Flogger G fighter-interceptor, but a few probably are two-seat trainer versions.

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its 2,000-kilogram bomb load is light by Western standards, it represents at least a 25-percent increase over the carrying capacity of North Korea's next-best fighters, the 20 MIG-21 Fishbed J models that the Soviets delivered in 1972 and 1973.

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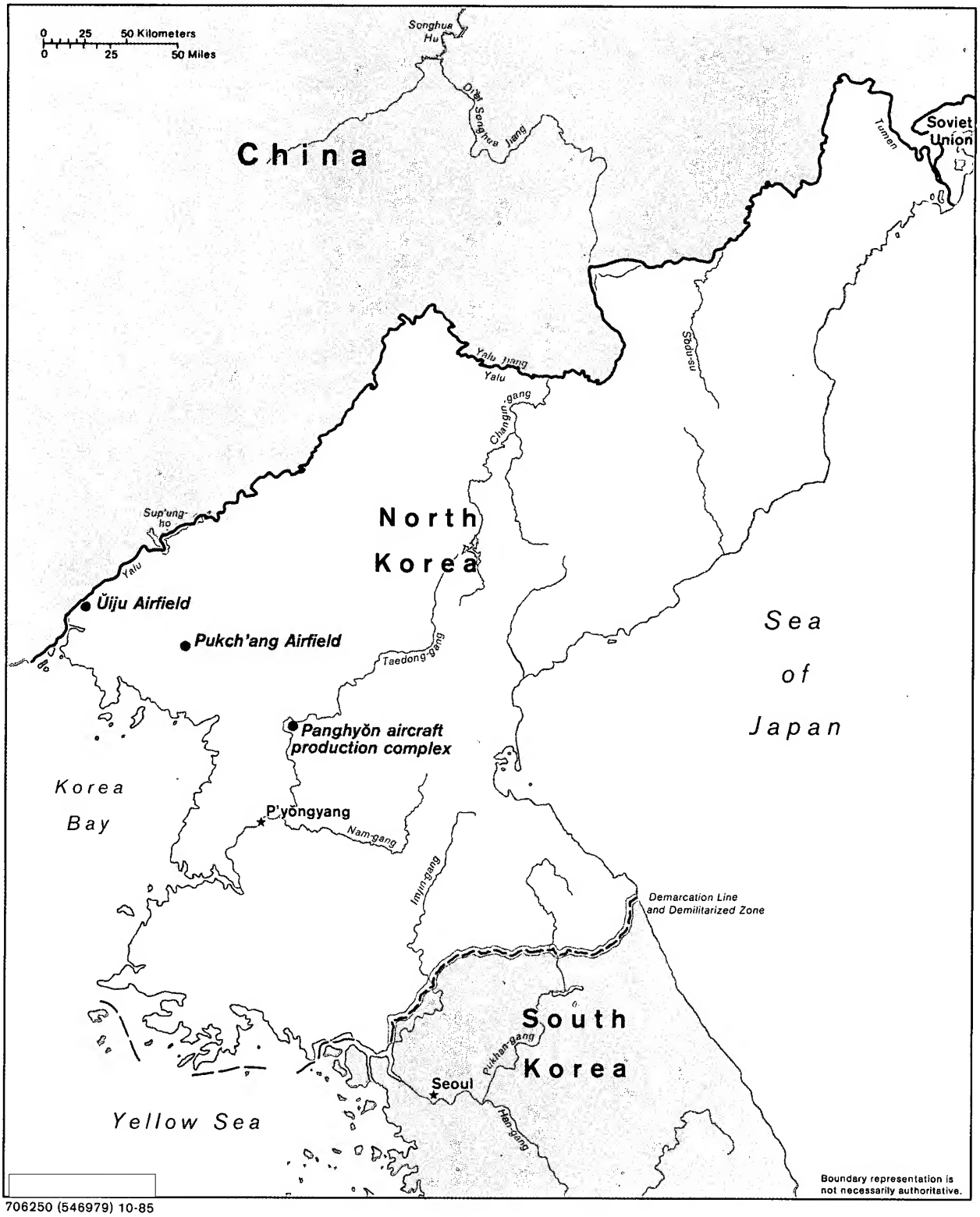
We believe that the Soviets will provide at least a full regiment—about 40 aircraft. If current delivery rates are maintained, P'yongyang will have the full regimental complement by early 1986. All Flogger G's probably will be based at Pukchang, 55 kilometers

The Flogger G has a secondary capability as a ground attack fighter and could be used in this role. Although

Figure 2
Selected Aircraft Facilities



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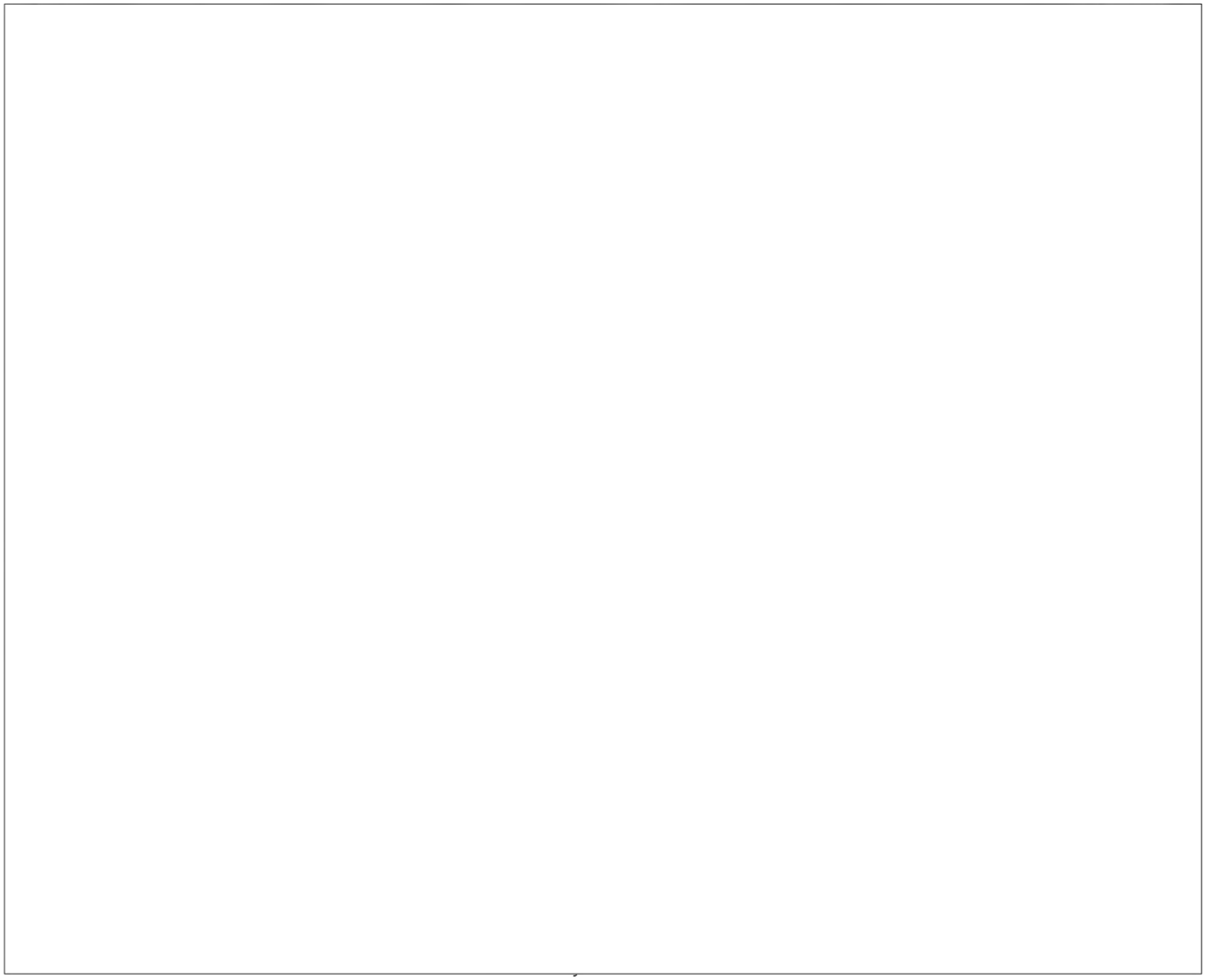

north-northeast of P'yongyang (see map). The normal fighter complement at Pukchang—a MIG-21 regiment—has been dispersed to other airfields, almost certainly to make room for some 40 Floggers.

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25X1 we expect that it will take from six months to a year of intensive training from receipt of all fighters before the Flogger regiment is operational and fully integrated into the North's air defense system.

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Fighter Production. Soon P'yongyang will no longer be totally dependent on outside suppliers for military aircraft. construc- 25X1 tion at a major aircraft production complex at Panghyon, some 100 km north of P'yongyang, is almost finished An airframe plant for fixed-wing 25X1 aircraft was externally complete by July 1984, and a

jet engine plant was nearing completion in September 1985

Jet fighter assembly or production could begin in early 1986, with series production commencing in 1987. North Korea has some experience in aircraft production.

helicopters are also in production.

We believe that the first fighters to be produced at Panghyon will be copies of the F-7, China's improved version of the early-model, Soviet MIG-21.

China supplied P'yongyang with 40 F-7s in March 1982, and North Korean President Kim Il-song visited the main F-7 plant during his visit to China later the same year.

Helicopter Acquisitions. The North's helicopter force also is expanding through imports and domestic production.[3] Since 1979 the number of helicopters in the North Korean Air Force has increased from 67 to over 250. Poland supplied over 100 Soviet-designed MI-2s between 1980 and 1984; and P'yongyang illegally acquired 86 Hughes 500s from the United States in 1983 and 1984.

limited production or assembly of a North Korean copy of the MI-2—called Hyoksin-2 (Innovation-2)—is under way at a helicopter production facility also located at Panghyon

Air Defense

North Korea also is improving its ground-based air defenses through imports from the USSR. SA-3 surface-to-air missiles and transporters

The SA-3 system probably is not yet operationally deployed:

- No launch equipment has been seen.
- No operational firing site has been identified, and

Only the Soviets are known to produce the SA-3, which has been exported to many countries. The SA-3s probably are part of a package of Soviet equipment that includes the MIG-23s.

The SA-3 is an old system of early 1960s vintage, but it is still widely deployed in the USSR. It will provide North Korea with a substantially improved and much-needed missile defense against aircraft flying at low altitudes. Before the receipt of SA-3s, North Korea was dependent on large numbers of antiaircraft guns and hand-held missiles (SA-7s) for low-altitude air defense.

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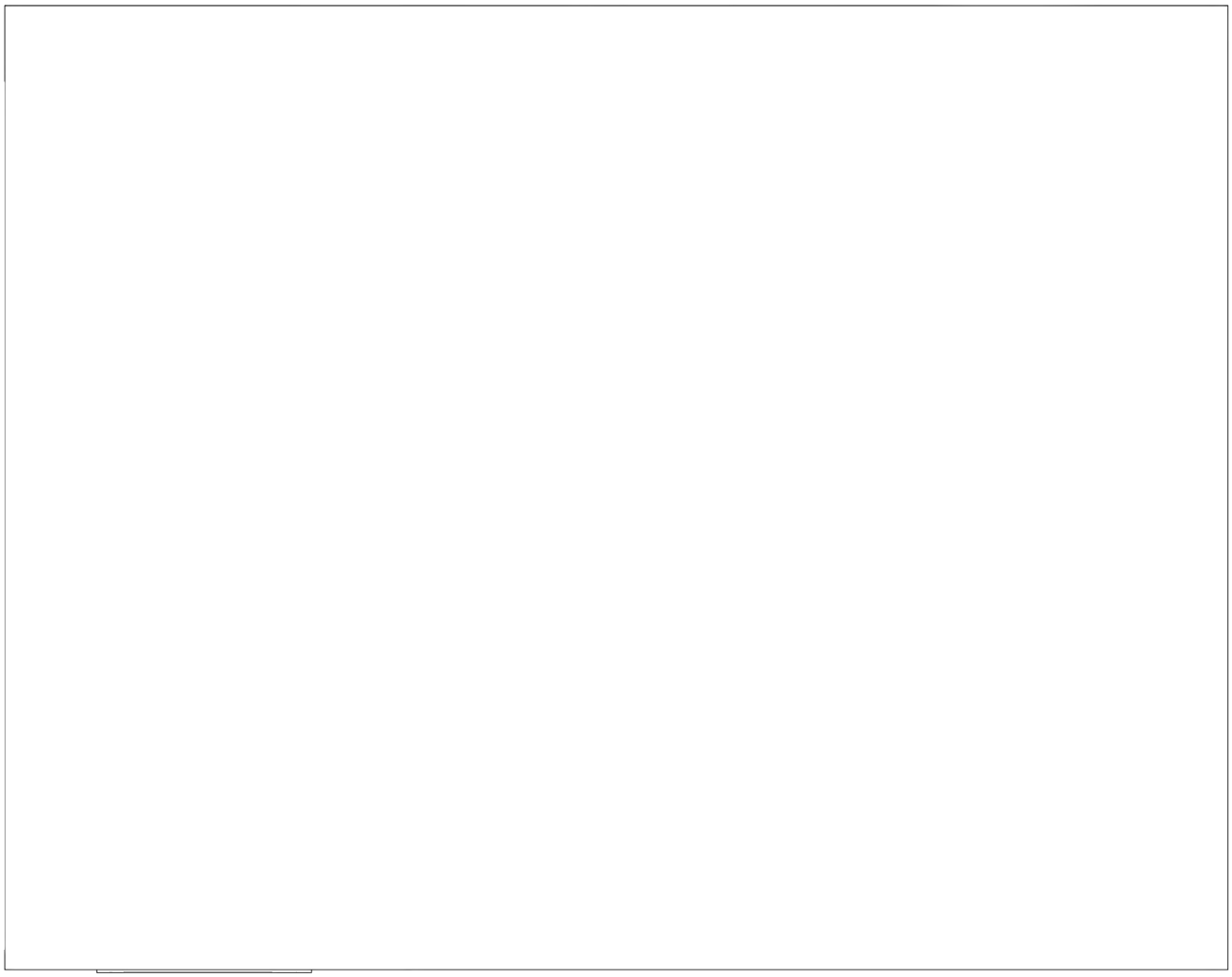

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We do not know how wide SA-3 deployment will be. The system probably will be used initially for defense around the capital. Deployment at other important point targets and perhaps in a barrier-defense role may follow. The SA-3 is not a mobile system, but it is road transportable. With its 27-km maximum range, it could be used to provide low-altitude protection from fixed sites for ground forces along the demilitarized zone.

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Air-to-Surface Missiles

As with domestic fighter production, North Korea appears intent on indigenous development of a system for air launching cruise missiles against ships. Soviet-designed Styx antiship missiles have been seen since

an IL-28 bomber base at Uiju near the China border in northwestern North Korea. In July 1985,

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The subsonic Styx missiles usually are deployed on North Korean patrol boats or frigates, or at coastal defense sites, but Uiju is too far inland for coastal defense, and no naval facilities are nearby.

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North Korea has 70 IL-28 bombers that came from the USSR and China from the 1950s through the early 1970s. Both Moscow and Beijing have supplied Styx missiles to P'yongyang in the past, but North Korea probably has produced these missiles for several years.

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The North Koreans probably are attempting to copy Chinese efforts to convert the surface-to-surface Styx to an air-to-surface missile (ASM). China has been evaluating this concept for years

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Chinese deployment is expected by 1987.

if the missile can be successfully mated with the IL-28—operational deployment probably is several years off.

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Successful development of an ASM-equipped IL-28 would enhance North Korea's antiship capability, which is now limited principally to missiles and guns in coastal defense sites, ships and boats with a missile-firing range of 46 km, and diesel-attack submarines with torpedoes. The IL-28's maximum combat radius of 1,000 km would be reduced by the externally mounted Styx. We do not know, however, how much it would be reduced because the Styx has never been used on an IL-28, and we do not know if the missile will be mounted on the wings or under the fuselage. Although the IL-28 is old, slow, and vulnerable, the Styx should provide a standoff weapon that could be launched outside the effective range of most shipborne missiles.

Impact on the Air Balance

Current Forces. North Korea's acquisition of a single regiment of Flogger G's will have little effect on the balance of airpower that now favors the South. Seoul's numerically inferior Air Force includes larger numbers of quality aircraft that are armed with better missiles (see table 1). Superior training and tactics add to the South's qualitative advantage. Despite its all-aspect attack and all-weather capabilities, the Flogger G would not be a significant improvement over the F-4E Phantom, the best fighter now in the South Korean Air Force. The Sparrow missile arming the F-4 is better than the Apex on the Flogger G, and the

Table 1
Jet Fighter Forces, 1985

	South Korea	North Korea	Ratio
Total	**379**	**625**	**1.6 to 1, North**
First line	258 (68 F-4D/E 190 F-5E/F)	189 (26 MIG-23, 163 F-7/ MIG-21)	1.4 to 1, South
Second line	101 (F-5A/B)	170 (F-6)	1.7 to 1, North
Obsolescent	20 (F-86)	266 (MIG-15/17)	13.3 to 1, North

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Force Projections. Predicting the size and composition of the fighter forces of both Koreas even through the 1980s is difficult:

- We do not know if the Soviets will provide more than one regiment of Floggers or if they will supply other types of aircraft.

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- South Korea is buying 36 F-16s, with delivery starting next year. Seoul also has made overtures regarding the purchase of 36 F-4Es from the United States in 1987, but has not made a commitment.[4]

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[4] the South Korean Air Force Chief of Staff was told in Washington that F-4Es would not be available until after 1990. The F-4D model will be available in 1989.

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Table 2
Estimated Jet Fighter Forces, 1989

	1989 (Case 1)		
	South Korea (planned and budgeted)	North Korea	Ratio
First line	314 (36 F-16, 68 F-4, 210 F-5 E/F)	253 (40 MIG-23, 213 F-7/ MIG-21)	1.2 to 1, South
Second line	101 (F-5A/B)	170 (F-6)	1.7 to 1, North
Obsolescent		250 (MIG-15/17)	
Total	**415**	**673**	**1.6 to 1, North**

	1989 (Case 2)		
	South Korea (planned and discussed)	North Korea	Ratio
First line	350 (36 F-16 104 F-4, 210 F-5E/F)	343 (80 MIG-23, 263 F-7/ MIG-21)	Even
Second line	101 (F-5A/B)	170 (F-6)	1.7 to 1, North
Obsolescent		210 (MIG-15/17)	
Total	**451**	**723**	**1.6 to 1, North**

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Nonetheless, we believe there is enough evidence to allow us to make certain assumptions and in turn estimate the composition of the fighter forces for the two Koreas at the end of 1989. Two alternative, but perhaps equally likely, scenarios that show differences in the numbers of firstline fighters for both sides are projected under the following assumptions (see table 2).

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In case 1, we assume that Seoul will complete the coproduction program and add the final 20 F-5E/Fs in 1986. No further additions will be made except for the 36 F-16s now firmly scheduled for delivery between January 1986 and January 1989. North Korea probably will receive only a token delivery from Moscow to fill out the single regiment of Floggers. P'yongyang will acquire 50 F-7s through domestic manufacture or assembly, following a slow startup in 1986 and 1987, and achieve an annual production rate of 20 fighters by 1989.

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Under this scenario, Seoul's numerical advantage in firstline aircraft would decrease. South Korea might actually achieve a slight gain in quality, however, through the acquisition of the F-16. The F-16 is far superior to the MIG-23, which is more equivalent to the South's F-4. North Korea's fleet of F-7s would increase faster than Seoul's inventory of F-5E/F fighters. The F-5E/F and the F-7 are essentially a trade-off in air-to-air combat; neither approaches the capabilities of the F-16.

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In case 2—a higher but perhaps equally likely estimate—we assume that South Korea will purchase 36 F-4s from excess US stocks in 1989 and receive the last of the 36 F-16s. The USSR will supply North Korea with an additional regiment of Flogger G's. China will provide enough assistance so that P'yongyang's aircraft industry will overcome early production problems. The North will reach an annual production rate of 40 in 1988, and 100 F-7s will enter the force by the end of 1989. A substantial number of MIG-15/17s would be phased out (see table 2).

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Under these circumstances, the North's lead in the total number of fighters would remain the same as it is now, but Seoul's numerical edge in firstline fighters would decrease markedly. We would continue to give South Korea's Air Force an advantage, but only a narrow one. In numbers of best quality aircraft, the South's fleet of F-16s and F-4s would be substantially larger than the number of MIG-23s in North Korea (140 to 80). P'yongyang's largest increase would come in the F-7, a clear-weather, daylight-only fighter-interceptor.

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We do not expect the air balance to shift to the North's favor during this decade. Significant change would require an even greater commitment from Moscow—considerably larger numbers of aircraft and probably a more modern fighter like the MIG-29. The MIG-29 is just now entering Soviet service, and probably would not be available for several years. South Korea's advantages, therefore, probably will remain about the same or could decrease considerably

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by 1989, rather than increase as Seoul planned under its current aircraft improvement program. As a result, South Korea is not likely to achieve superiority in airpower sufficient to compensate for the North's advantage of a larger ground force with a substantial edge in mobility and firepower.

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Beyond the Air Balance

The renewal of weapons shipments by the Soviets could have even broader implications, if Moscow supplies weapons for the North's ground forces. Rumors persist that the USSR will provide such weapons as the T-72 tank, modern antitank missiles, and mobile surface-to-air missiles. These weapons would increase the capabilities of the North's already large and potent ground forces far beyond improvement we expect from the North's own research, development, and production efforts, and serve to increase P'yongyang's substantial lead in ground force capabilities over the South.

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We do not know, however, just how far the Soviets are willing to go in providing weapons to P'yongyang, nor what they would demand in return.

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Moscow may believe that such deliveries eventually could lead to air and naval access to bases in North Korea. For its part, P'yongyang probably would resist giving up territorial concessions that would look like ceding sovereignty to the USSR. Moreover, the North would be unable to pay for large numbers of weapons. It might, however, be willing to increase support for Soviet policies at the expense of ties to Beijing.

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